The client can include features that effectively prevent software executed on the client or the operator of the client from interfering with the server verification and authorization procedures of the invention. For example, the encryption key can be encoded on an integrated circuit at the client to prevent the key from becoming publicly known. Furthermore, the integrated circuit can have multiple encryption keys encoded thereon, with one of the keys being selected at random in each authorization procedure.

Certain registers at the client, such as those that specify the level of authorization of the client, can be controlled by the server without the intervention of software at the client. In particular, the server sends encrypted information to the client, where it can be decrypted by a decryption key encoded in an application-specific integrated circuit and then written to control registers. Thus, once the server verifies the identity of the client, the appropriate level of authorization can be maintained, even if the security of client software is breached. The authorized server, at its discretion, can also make any of a wide range of requests to the client to ensure that the client is authorized to receive network resources. For example, the client machine identifier can be independently verified by the server.

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SALT LAKE CITY, UTAH 84111

BRIEF DESCRIPTION OF THE DRAWINGS

In order that the manner in which the above-recited and other advantages and objects of the invention are obtained, a more particular description of the invention briefly described above will be rendered by reference to specific embodiments thereof which are illustrated in the appended drawings. Understanding that these drawings depict only typical embodiments of the invention and are not therefore to be considered limiting of its scope, the invention will be described and explained with additional specificity and detail through the use of the accompanying drawings in which:

Figure 1 is a schematic diagram illustrating a network environment in which the invention may be implemented.

Figure 2 is a schematic diagram illustrating one embodiment of a client system for use with the invention.

Figure 3 is a schematic diagram depicting a client and a server interacting to verify the authorization of the server to provide network resources to the client.

Figure 4 is schematic diagram illustrating the client of Figure 3 in greater detail, including features for generating an encrypted client message and for comparing a random number contained in a service message with a random number contained in the client message.

Figure 5 is a schematic diagram illustrating the server of Figure 3 in greater detail, including features for decrypting the client message and generating an encrypted service message.

Figure 6 is a schematic diagram showing the manner in which an application-specific integrated circuit at the client can decrypt authorization information received from the server using an encoded decryption key according to one embodiment of the invention.

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Figure 7 is a schematic diagram illustrating an alternative embodiment in which a smart card is used in conjunction with the client to verify that the server is authorized to provide network resources.

Figure 8 is a flow diagram depicting a method for generating an encrypted client message that includes a random number.

Figure 9 is a flow diagram illustrating a method for decrypting the client message at the authorized server and generating an encrypted service message that incorporates the random number.

Figure 10 is a flow diagram illustrating a method for decrypting the service message and comparing the random number included in the service message with the random number included in the client message.

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